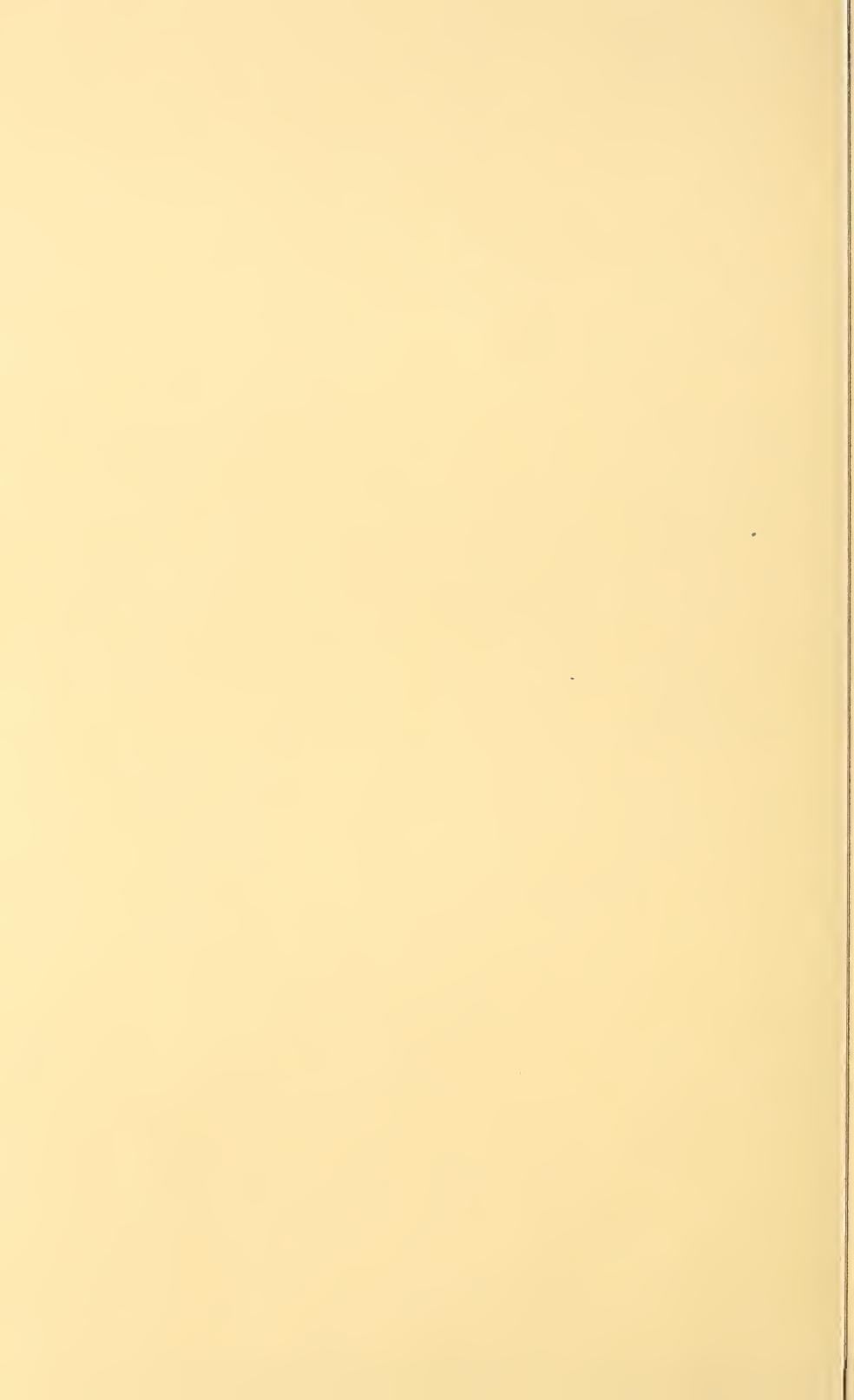


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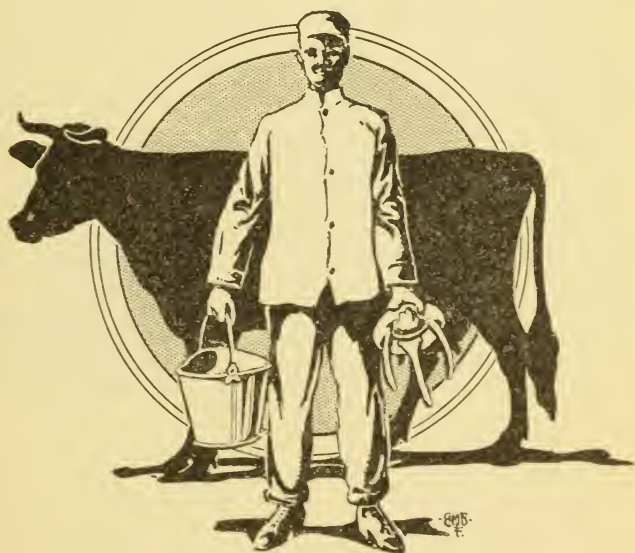
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IMPROVED SANITATION IN MILK PRODUCTION



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IMPROVED SANITATION IN MILK PRODUCTION

By R. J. POSSON,¹ *Associate Market Milk Specialist*

Revised by C. S. LEETE, *Associate Market Milk Specialist, Bureau of Dairy Industry*

The need for improved methods in producing milk becomes greater as the present cities increase in size and new ones develop. This growth necessitates extending the area from which milk is obtained. Milk therefore must be transported greater distances. It must be produced properly to reach the consumer or manufacturer in satisfactory condition. Furthermore, there is an increased demand by the consumer for milk of good quality, and health officials are requiring improved sanitary methods in its production.

The term "quality" as applied to milk formerly meant to the consumer the amount of butterfat that it contained. Now "quality" as generally understood implies far more. Good quality means not only adequate food value but also good keeping properties and freedom from bacteria.

The dairy farmer benefits in two ways by selling high-grade products. In the first place, the price to be paid for the product is governed to quite an extent by consumers' demands, and it has been found that good quality in dairy products stimulates consumption, which has increased from 43 gallons a year per capita in 1920 to 55 gallons a year in 1926.

In the second place, products of good quality bring a higher price than those of low quality. Milk and cream which are not carefully handled sour quickly and are either a total loss or are used in the manufacture of low-grade dairy products which sell at a reduced price. With only a little more effort, and with only a little more outlay of money, than are now spent by the dairy industry as a whole in the production of milk and cream, the dairy farmers of this country could put on the market products of such quality that their income would be increased by many millions of dollars annually.

When these facts are considered, together with the realization by the public of the value of milk of high quality as a food, especially for the growing child, it is seen that a load of responsibility is placed squarely on the shoulders of the milk producer. On the other hand, this responsibility is not so burdensome as it would have been years ago, for there is a clearer understanding of how to produce clean milk. Out of the experiences of successful dairymen and the work of investigators has gradually developed a simplified knowledge of the subject. By observing certain precautions clean milk can be produced with very little more effort than milk which is not clean.

High-quality products are the basis of prosperity for the dairy industry. Irrespective of the requirements of any outside supervising agency, each milk producer must realize his responsibility for selling clean milk and cream. Failure to do this will seriously impair the welfare of the individual and of the industry.

¹ Mr. Posson resigned from the department Jan. 23, 1928.

Produce Milk from Clean, Healthy Cows

Milk, in order to be clean, must first of all be from healthy cows. They should not only appear healthy, but must be free from tuberculosis as shown by the tuberculin test made by a competent veterinarian at least once each year. Never use milk from a cow with an infected udder or milk which is stringy or otherwise abnormal.

Clean the cows thoroughly before they are milked. Curry or brush them regularly. If the hair on the udder, belly, and flanks is closely clipped it will be much easier to keep the cows clean. Before milking, wipe these parts with a clean, damp cloth. When they are badly soiled wash them with clean water before wiping them. (Fig.

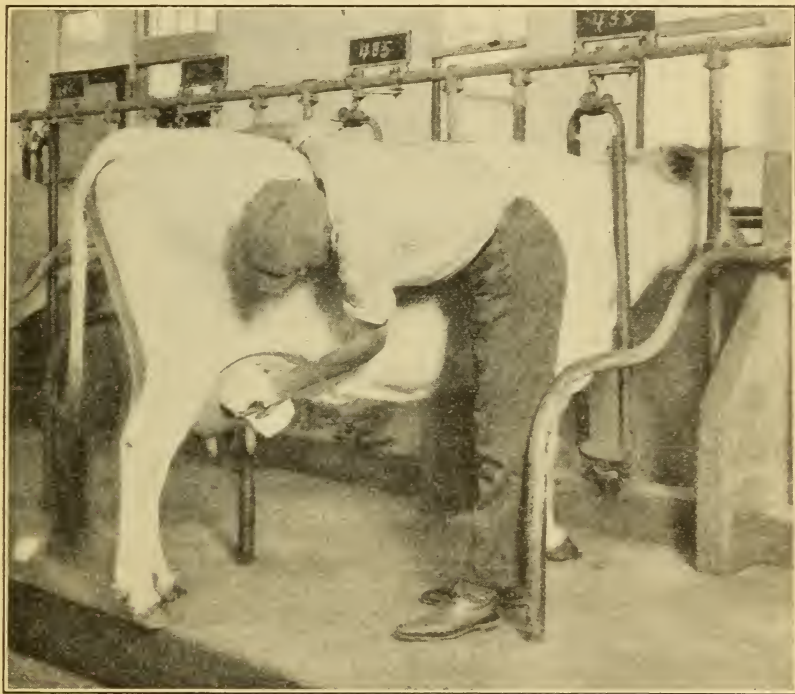


FIGURE 1.—Wiping teats, udder, and flanks of a cow with a clean, damp cloth

1.) This takes only a few moments and is a valuable aid in preventing bacteria from being carried into the milk by falling hair, dandruff, and dust particles. Since bacteria cause milk to sour and may cause disease, keep them out of the milk by every possible means.

To keep your cows healthy and to keep them clean with as little labor as possible, provide plenty of sunlight and ventilation in the barn, watertight floors and gutters, and drain the yards and keep them free from manure. Do not feel discouraged, however, if you do not have an elaborate and expensive barn, as clean milk can be produced in a barn of simple and cheap construction if careful methods are used. Figure 2 shows the interior of a dairy barn where clean milk is produced. It is an old, inexpensive type but equipped

with plenty of windows and with tight floors which are easy to keep clean.

Milkers Should Be Clean and Healthy

Only healthy people should be employed in a dairy. Take no chances with infectious or contagious diseases. Report immediately

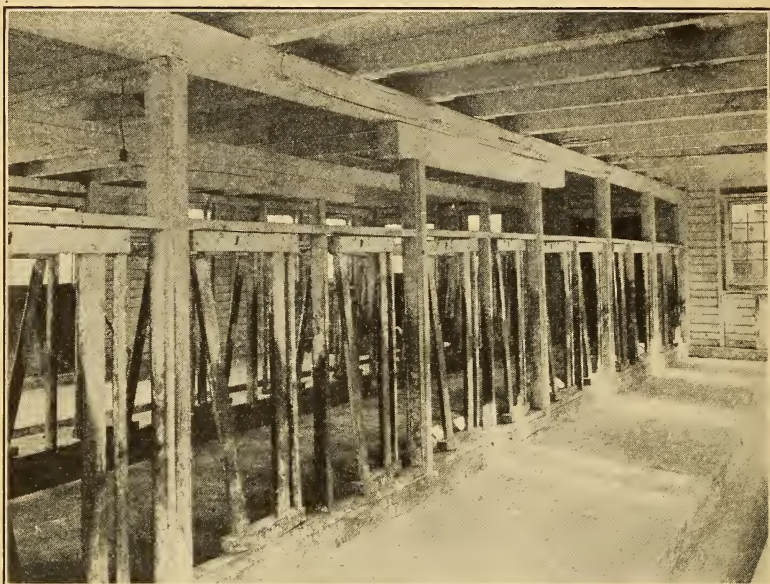


FIGURE 2.—Interior of an old, inexpensive dairy barn where clean milk is produced

to the proper authorities all cases of sickness on the farm. In this way you will guard against the possibility of spreading disease through your milk supply. See that milkers and milk handlers wear clean clothing. Provide overalls or other suitable clothing for use only during milking and have this clothing washed frequently.

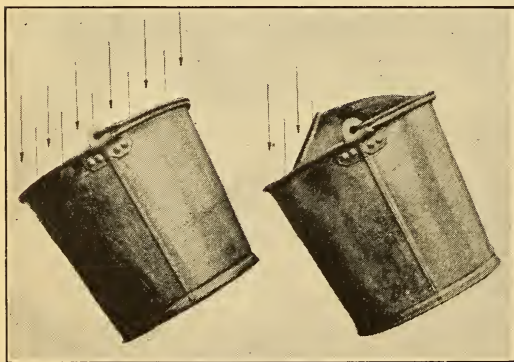


FIGURE 3.—Why the small-top milk pail is preferable to the ordinary pail

Milk with clean, dry hands. Wet-hand milking is a filthy habit and contaminates the milk. Keep the milking stool clean to prevent its soiling the milker's hands.

Use Small-Top Pails

Use small-top milk pails (fig. 3) as they keep a large part of the falling hair and dirt out of the milk. They are easy to use,

cost little more than ordinary pails, and are one of the most valuable aids in keeping bacteria out of milk. They help to carry out the plan of keeping dirt out of milk instead of straining it out.

Take Special Care of Strainers

It is usually necessary to strain milk so that no foreign objects are contained in it when sold. Straining may improve its appearance but does little more as most of the bacteria on the sediment are washed off in the milk. The strainer itself may be a source of much contamination unless proper care is taken of it. It is desirable to use strainer cloths or pads but once, discarding them after each milking. Such cloths or pads may be purchased from any dairy-supply house at a reasonable cost. It is very difficult to effectively cleanse strainer cloths after they have once been used.



FIGURE 4.—An economical dairy house connected with the barn by a well-ventilated passageway

Protect the Water Supply

Be certain that you have a pure, safe water supply. Wall in wells and springs, cover them tightly, and protect from surface drainage by ditches. Locate wells on the highest available ground.

Provide a Separate Dairy House

Provide a separate dairy house or milk room. (Fig. 4.) Milk to be sold should never be handled in a dwelling or a room directly connected with a dwelling, as there is too much chance of dangerous contamination in case sickness occurs in the family. Locate the milk room on the windward side of the barn and near it so that each pail of milk can be easily cooled as soon as it is drawn. It may even be connected with the barn by a covered passageway. It should, however, be at a distance from the yards and manure piles. Provide at least two rooms in the dairy house so that the milk will not be handled in the room in which the utensils are washed or where the

boiler is located. See that the building is well lighted and ventilated. In order that it may easily be kept clean, provide smooth walls and ceilings and a good concrete or equally impervious floor, well drained.

Cleanse the Milk Utensils

Milk utensils which are not effectively washed and further treated with heat or a chlorine solution may be the greatest source of milk contamination. Rinse them on the inside and outside with lukewarm or cold water as soon as possible after use. Place them in a wash vat, scrub with a brush in warm water containing a soda ash or alkaline

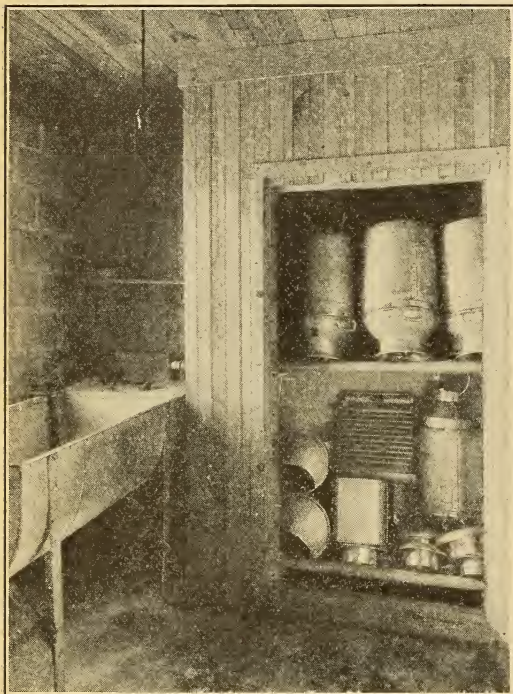


FIGURE 5.—Milk utensils in a cabinet ready to be steamed

washing powder (not soap), rinse, put them in a cabinet, and thoroughly steam them. (Fig. 5.) A cabinet which is operated with steam from a boiler is most satisfactory for the majority of dairies. Small retail and medium-sized wholesale dairies which do not have steam boilers may, however, make satisfactory use of a galvanized-iron box. (Fig. 6.) This kind of cabinet is placed on a foundation which serves as a firebox or on some other heating unit. The utensils are placed over a small quantity of water in the bottom of the cabinet and steamed. This box may be used also as a water heater.

After steaming the utensils, either leave them in the cabinet until they are to be used, or invert them on a rack, preferably in the sun in a place as free as possible from dust.

If steam is not available, a chlorine solution of proper strength may be used. It can not be emphasized too strongly, however, that if the solution is to be effective the utensils must be thoroughly cleaned so that no particles of organic matter adhere to them. The solution should be used but once; therefore, it must be made up twice daily. Immerse the utensils in a tank containing the solution in such a way that all air pockets have been eliminated.

If a milking machine is used, special care should be taken in cleaning it and treating it with heat or a chlorine solution. Clean it with special brushes, warm water, and washing powder each time it is

used. Milking-machine rubber parts and small metal parts may be satisfactorily treated after washing by placing them in water which has been heated to 165° F. and left in this water (which is then allowed to cool gradually) until the next milking. Full particulars on this subject may be obtained by writing to the United States Department of Agriculture for Farmers' Bulletin 1315-F, "Cleaning Milking Machines."

Cool Milk and Cream Quickly

To prevent multiplication of bacteria which unavoidably get into milk, cool the milk as soon as possible after it is produced and keep it cold. Bacteria are tiny single-celled plants, which, like most other plants, require warmth if they are to grow. If milk is cooled to 50° F. or below and held at that temperature, bacterial multiplication is very much retarded.

Equip the milk room with a cooling and storage tank through which cold water may be run around the milk cans (fig. 7) or with a surface cooler through which some cooling medium may be run. (Fig. 8.) If cold running water is not available use ice either in the tank or to cool the water in the surface cooler. Many dairies use mechanical refrigeration.

Keep Milk and Cream Cold During Transportation

Protect the milk from the sun and warm air while it is being transported from the farm to the city. See that milk stands at the roadside are shaded, and cover with a canvas cans of milk and cream hauled in trucks or wagons. If this is not done much careful work performed in producing the milk may be wasted. Heavy jackets for milk cans, which aid materially in keeping the contents cold, may be purchased from dairy-supply firms.

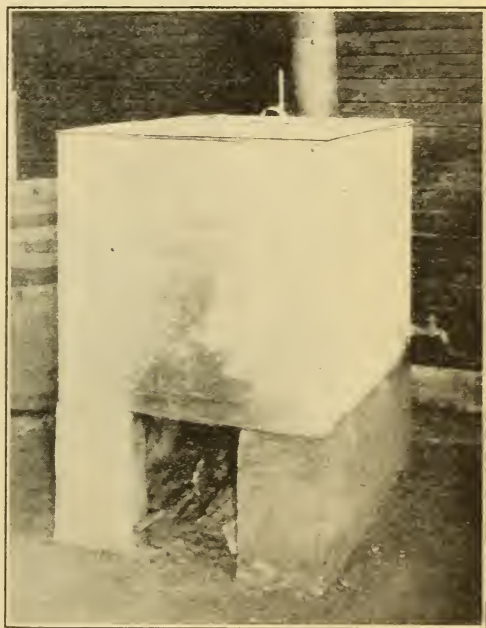


FIGURE 6.—A galvanized-iron steaming box and water heater

Fight the Flies

Flies are a nuisance of the worst kind in a dairy since they breed in filth and carry many bacteria which may contaminate the milk with disease organisms. Rid the premises of manure, which is their favorite breeding place, and trap and poison them. If the yards

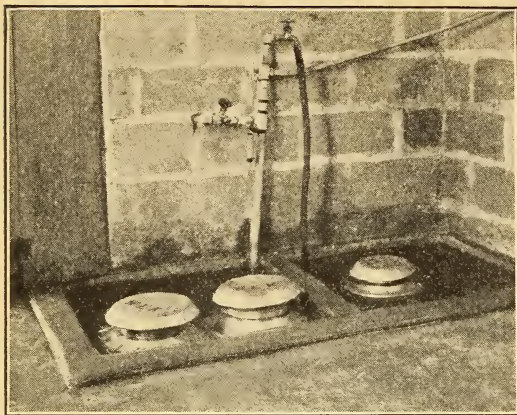


FIGURE 7.—Keeping cans of milk cold in a cooling and storage tank with ice water or cold running water

are kept free from refuse and manure flies may be more easily controlled.

Summary

To improve the milk supply, produce it under sanitary conditions, which include clean, healthy cows; clean, healthy milkers; and small-top pails or milking machines. Cool milk quickly to 50° F. or below and keep it cold until delivered or shipped.

All equipment coming into contact with milk should be thoroughly washed and then further treated with heat or a chlorine solution.

If a milking machine is used, take special care to see that all the parts are thoroughly cleaned and then effectively treated with heat or chlorine.

It is to be borne in mind that the main thing which the washing of the utensils accomplishes is to free them from the undesirable substances which are apparent to the naked eye; and that it is the treatment with steam, boiling water, or chlorine which kills the bacteria, those very small living organisms which are not seen but which have a great deal to do with lowering the quality of the milk.

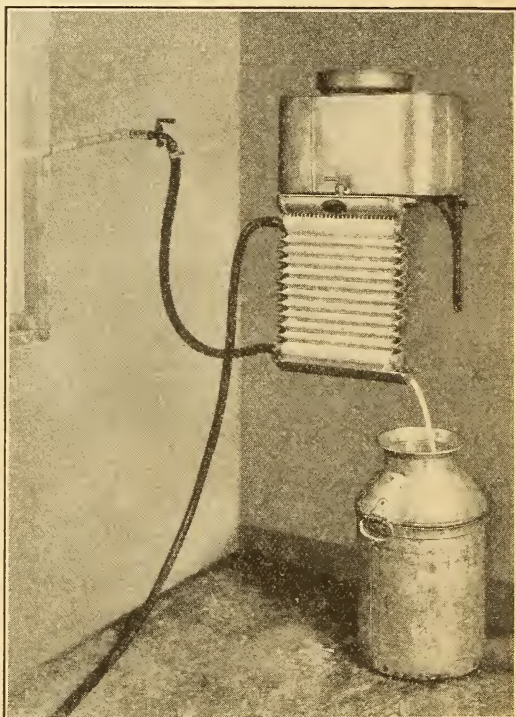


FIGURE 8.—Cooling milk quickly with running water or ice water by means of a surface cooler. The flow of water should be from the bottom to the top

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